## Our Planet

Climate Simulation Data Analysis

Earth system scientists are being inundated by an explosion of data generated by ever-increasing resolution in both global models and remote sensors. The rapidly growing size of datasets makes scientific analysis using desktop computers increasingly difficult. Further, there is a need to provide data reduction and analysis web services through the Earth System Grid (ESG). A pressing need is emerging for server-side data analysis capabilities closely linked to data archives. To meet this need, the NASA Center for Computational Sciences (NCCS) at Goddard Space Flight Center has installed a high performance server for direct-access, interactive, large-scale data analysis.

This effort directly supports NASA's use of remote sensing data and global models to better understand the dynamics of the Earth system. Analysis of observational and model data is essential in understanding how changes to Earth system processes (e.g., Earth's climate) will impact mankind. This effort will multiply the value of NASA's investment in Earth observation and modeling by facilitating analysis of Earth system data by NASA scientists, and potentially, a broader audience through the ESG.

Furthermore, this computational service allows unprecedented access to high performance data and processing applications, facilitating climate data analysis operations in support of Earth system science that would otherwise be very difficult or impossible.
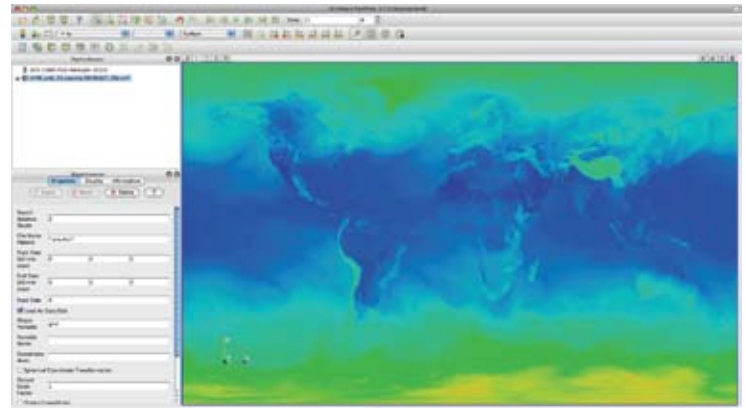
The ParaView client interface is used to configure and control the analysis and visualization pipeline. This example displays output from a global climate simulation.
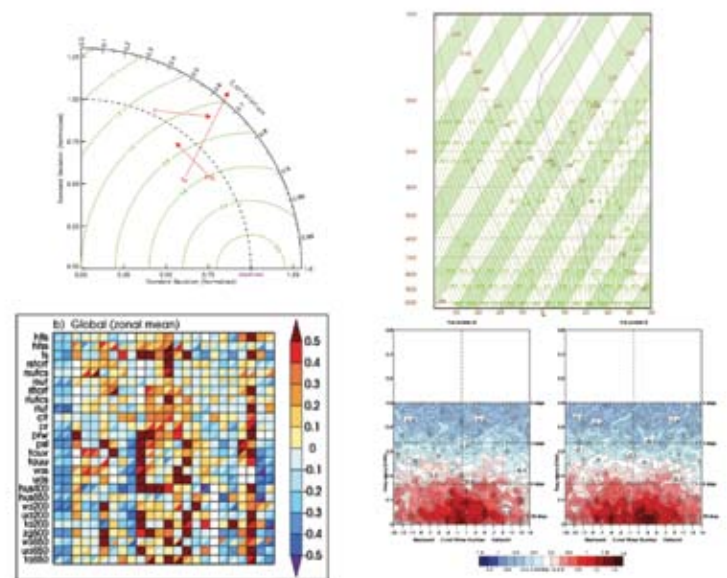
The Climate Data Analysis Toolkit (CDAT) provides a common environment for climate research, including uniform diagnostics for model evaluation and comparison. This example shows a Taylor Diagram, Thermodynamic Plot, Performance Portrait Plot, and a Wheeler-Kalidas Analysis.

Thomas Maxwell, NASA Goddard Space Flight Center
Thomas.Maxwell@nasa.gov

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